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ABSTRACT

In a study of children's production of narratives written in collaboration with a friend, with an acquaintance (nonfriend), or in an individual performance, a total of 64 fourth graders were asked to write stories over a 2-week period. The study was designed to address two questions: (1) How does the friendship relationship affect stories written by collaborating peers? and (2) Will stories written by collaborating friends be more or less mature than those written by collaborating nonfriends and individual authors? Subjects included 34 males and 26 females attending a magnet school in math- and science-oriented classes. A sociometric assessment was given to the children in each of the three participating classrooms. The students, each of whom wrote four stories, were divided into three groups: (1) those who wrote the four stories alone; (2) those who wrote the first story alone, then wrote twice with a friend, and then once more alone; and (3) those who wrote the first story alone, then wrote twice with a nonfriend, and then wrote alone again. Results indicated that social conditions affected certain characteristics of composition. Collaborating peers authored more qualitative stories, while collaborating friends added more affect and creativity to their texts. It is noted that the information in this paper is part of an ongoing study and should be considered preliminary. A reference list includes about 35 items. Appended are story prompts, the schema for coding stories, and information on the reliability of the coding. (HOD)

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ED354991

Friends and nonfriends: collaboration on a written text

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Abstract

The purpose of this study was to examine children's production of written narratives under three conditions: collaboration with a friend, collaboration with an acquaintance (nonfriend), and individual performance. Sixty fourth-grade children wrote four stories over a two-week period and were divided into three groups: (a) children who wrote the four stories alone; (b) children who wrote the first story alone, then twice with a friend, and once more alone; (c) children who wrote the first story alone, then twice with a nonfriend, and the fourth alone again. As an exploratory study, we sought to determine whether collaboration with a friend is more effective than with a nonfriend. Results indicated that the social conditions affected certain characteristics of composition; collaborating peers authored more qualitative stories, with collaborating friends concurrently adding more affect and creativity to their texts than the other groups.

Friends and nonfriends: collaboration on a written text.

There are two major areas of study in the field of child psychology that are relevant to the present investigation: writing and composition, and friendships. In the following sections, both areas of inquiry are discussed in enough detail to delineate the interrelationships between these two foci. Next, the literature directly leading to the design of the current examination will be discussed. Finally, the investigation itself will be fully described.

Children are socialized from the moment of their birth. An innate response to discomfort, the infant's cry marks the beginning of the bidirectional socialization between the infant and the available caregivers (i.e., mother, father, siblings, extended family, or others). As they grow and develop, approximately 85% of children's activities are socially-oriented (Barker & Wright, 1955). Of specific interest here, however, is the increasing amount of time children spend socially interacting with peers in terms of their total time spent in a social activity: 10% at age 2, 20% at age 4, and about 40% during the school-age years, between ages 7 and 11 (Barker & Wright, 1955). During this time span, many advances are made by the socialized child, including a decreased egocentrism and concurrently an increase in the child's ability to explain simple problems to another and to respond to another's feedback (Karabenick &

Miller, 1977), and an increase in the child's ability to integrate multiple sources of information (Brady, Newcomb, & Hartup, 1983). With these advances, along with many others, children become primed to engage in one of the most studied social relationships: friendship.

Friendships

Children are aware of the term "friend" and use it in discourse as early as age 3 (Hartup & Sancilio, 1986), but friendships of substance, those built on a structured framework of societal norms by the peers engaged in the friendship, emerge and rapidly develop during the late preschool years and school-age years. Hartup (1983) explains that friendships can "serve the same general functions in social and cognitive development as other close relationships," stating they (friendships) are "contexts in which certain basic competencies emerge or receive elaboration--e.g., social communication, group entry, and cooperation skills..." (p. 63). The emergence and elaboration of such competencies within a friendship can well be understood, given the similarity the friendship relationship has with a child's other close relationships (e.g., mother). Friendships mimic these other close relationships in that warmth, compassion, sensitivity, but also ambivalence play central roles (Hartup & Sancilio, 1986). Although friendships resemble other close relationships, it must be kept in mind that characteristically they differ in that friendships are less exclusive and operate on

a more equal level--the "horizontal relationship" (Hartup, 1989). In the same notion, Hartup (1989) describes a friendship as a "developmental advantage," not a necessity like the other close attachment relationships. As friendship status serves as one of the independent variables of the present investigation (see Methods), other aspects of the friendship relationship will be discussed below.

Friendship development. Hartup (in press) states that making friends and maintaining the friendships are two of the most significant accomplishments of childhood. It follows, then, that many variables go into friendship determination, with a few specifics being salient across the friendship literature. As exemplified by a study in which the investigators asked children ages 6-13 questions about friendships, Smollar and Youniss (1982) pointed out some specific variables. By the age of 6, children believe that one of the key components of becoming friends--even best friends--is simply spending large amounts of time with each other and perceiving similarities (Smollar & Youniss, 1982). Similarly, Smollar and Youniss found that the older children in the study believed that similarities between people were essential to becoming friends, as well as equitable treatment. The converse of the children's statements were true when asked about nonfriends. Both younger and older children cited lack of similarity (reciprocity) and unequal treatment by peers as specific reasons to not be a peer's friend. These findings, reciprocity and equity as necessities in friendship, as well as

cooperation and conflict management, are reiterated throughout the literature as vastly important (Gottman, 1983; Smollar & Youniss, 1982; Hartup, 1989; Hartup, in press).

Friends and nonfriends

As can be seen from the discussion so far, the friendship is a relationship shared between peers characterized by equality and reciprocity. Not every peer, however, equally considers another a friend; some are nonfriends. Throughout the literature, the nonfriend relationship (e.g., associate, neutral associate, acquaintance) has come to mean that at least one member of a dyad did not nominate the other as a friend on some type of sociometric assessment. Being engaged in a friendship carries with it many benefits and advantages not savored by children who comprise the nonfriend relationship. This is exemplified in part by the findings of Newcomb and Brady (1982) that in novel situations or environments, friends experience more interaction than nonfriends, as well as share more affect, equity, and mutual orientations.

In another study, Newcomb, Brady, and Hartup (1979) examined 88 first- and third-grade children to determine the effects, if any, of an incentive condition (cooperation or competition) and friendship status (friend or nonfriend) on task performance and social interaction. They found that the social interaction of children with their friends was qualitatively and quantitatively different from the social interaction of children with their

nonfriends (acquaintances); social contact between friends had a higher frequency, as did the affect displayed by the friends as compared to the nonfriends. Further, the social interaction between the friends was more reciprocal and equitable than the nonfriends, and was noted as more harmonious and more mutually directed for the friends. Performance on the specific task employed was not significantly different for friends as compared to the nonfriends. And, although the incentive condition (cooperation or competition) did not differentiate the friends from the nonfriends, other research has shown this finding to be a marked divergence from the established literature on friends and nonfriends in terms of cooperation and competition (conflict). As Hartup (1989) states, within the horizontal peer friendship "...children elaborate these skills with individuals who are more or less similar to themselves. Within these relationships, the complexities of cooperation and competition are mastered..." (p. 120).

Friends and nonfriends: competition, conflict, and cooperation. Before one can understand the interrelations among competition, conflict, and cooperation, the definition of conflict needs to be separated from the similar nuance it might have with competition; namely, a conflict exists "when one person does something to which a second person objects" (Hay, 1984, p.2, cited in Hartup et al., 1988). Competition, then, "usually refers to situations in which interdependencies existing between two individuals constrain their access to rewards" (Hartup, in

press, p. 4). With this difference in mind, a brief review of the literature concerning the above constructs is needed.

Cooperation and competition. In an investigation by Brady, Newcomb, and Hartup (1983), social context and peer behavior were examined as determinants of cooperation and competition in first-, third-, and fifth-grade children. Social context was presented as a situation in which the winners of a game would share a reward (cooperation is expected in such a situation - see French, Brownell, Graziano, & Hartup, 1977) or where the winner of the game would receive the entire reward (competition is expected in such a situation - see French et al., 1977). The subject played the game with a "bogus companion" who responded in either a 100% cooperative or 100% competitive manner. Brady et al. (1983) found that the companion's response led to cooperative children if cooperative and led to competitive children if competitive for all ages. The older children, however, behaved cooperatively whenever any cooperative cue was present--possibly owing to a desire to behave in a socially positive way for the researchers. Further, older children (fourth-grade) are more helpful and are more willing to share rewards with a cooperative partner than younger children (first-grade; Berndt, 1981).

Given Hartup's (1989) assertion that once established, friendships are "cooperative socialization contexts" (p. 124), it is no surprise that research shows, in cooperative settings, friends tend to be more interactive, show more affect, attend to the equity of the situation, and be more mutually oriented than

nonfriends (Newcomb & Brady, 1982; Newcomb, Brady, & Hartup, 1979). Hartup (in press) also put forth that in situations (tasks) that mandate turn-taking and mutual orientations, friends cooperate more meticulously than nonfriends.

Conflict. In addition to the literature on cooperation between friends and that between nonfriends, much information is available concerning conflict.

A study by Hartup et al. (1988) examined the difference between conflict occurring between friends and that occurring between nonfriends. They found some similarities and some differences between the two groups: conflicts were comparable in frequency, length, and the situations that produced the conflict, but were disparate in that the conflict of friends were less intense, were more often resolved in disengagement, and more frequently ended with an equitable outcome.

In a study more related to the present investigation, conflict and friendship status were compared in a 'closed-field' situation (Hartup, French, Laursen, Johnston, & Ogawa, 1992). In a closed-field situation, individuals cannot choose their interactive partners, nor the setting, topic, and length of the interaction, compared to an 'open-field' situation, one in which the participants have control over these variables (Hartup, in press; Hartup et al., 1992). The literature suggests that in an open-field situation, when children are free to terminate their interaction, friends engage in less intense conflict, cease their conflicts more readily, have more equitable resolutions, and have

more frequent interaction following a conflict than nonfriends--all presumably because friends have a greater investment in their relationship than nonfriends (Hartup et al., 1988). Comparatively, in a closed-field situation, assured that the interaction will not be broken off, friends are more secure to engage their partners in more frequent, intense conflict (Hartup, in press). Although there is a dearth of information found in the literature (as well as a divergent finding; Berndt, Perry, & Miller, 1988) concerning the closed-field interaction and friendship status, one recent study added support to the differences described above.

In their investigation, Hartup et al. (1992) taught school-age subjects, paired with either a friend or a nonfriend, the rules to a novel board game. To allow for the potential for conflict, one member of each dyad learned five rules that contradicted what the other member of each dyad had been taught. Hartup et al. (1992) found that the friends disagreed more frequently than the nonfriends, and these disagreements had a longer duration--although the amount of conversation within the disagreements was equitable between groups. Hartup et al. (1992) conclude from their results that in closed-field situations, friends tend to be freer to oppose one another, with a higher motivation to disagree, than nonfriends. This is particularly evident when friends are ego-invested in an interaction, leading to increased competition (Hartup, in press).

Conclusion

Friendships are based on reciprocity and equity between the members of the relationship. Children engaged in a friendship tend to receive certain social benefits from their peer interactions that nonfriends might not: increased affect, mutuality, cooperation, and effective conflict management, among others. As these characteristics are differentiated in the social relationships of children, they seem very likely to produce analogous effects when applied in an academic setting--namely peer collaboration during a writing task.

Writing and Composition

Most children begin expressing ideas in writing around the age of 4-6 years, when they have gained the fine motor skills and maturation necessary to successfully scribe their names. These children are also experiencing almost exponential growth of the number of words in their vocabularies. When children reach school age, they find that the curricula of many schools stress the interaction between growing vocabularies and development in writing ability. Because of this, as children progress through the first few grades, they are repeatedly exposed to new vocabulary and engage in writing practice. Perhaps the most salient facilitator of the child's growth in the realm of writing and composition is the teacher, who plays the role of an "expert" during the transmission of knowledge to the student.

The expert and the novice: learning together. In an expert/novice relationship, the flow of information is almost universally unidirectional at the onset, with the expert guiding the novice. At some point in the relationship, the flow of knowledge becomes bidirectional; the expert not only teaches, but also receives cues from the novice as to what information is needed and at what pace it should be supplied. It follows, then, that as a child attempts to comprehend the multifarious relations between syntax and mechanics in the English language, s/he assumes the role of the ignorant novice; one who is unfamiliar with the nuances that coincide with even the most basic writing. In need of guidance, the child accepts the training of an individual more learned--the expert teacher.

Procedural facilitation. Daiute and Dalton (in press) describe an offshoot of the expert/novice relationship, procedural facilitation. In order to help the novice more fully understand the complexities of writing, the expert (i.e., teacher) gives the aid of specific prompts directed at the conceptualization of ideas and the composition of them in a comprehendible way (Daiute & Dalton, in press; Bereiter & Scardamalia, 1987; Collins, Brown, & Newman, 1989). So, in addition to giving a general description of the rules of writing, through procedural facilitation the expert guides the novice in a more precise fashion in the utilization and application of the rules of writing.

Expert writers supply direction for the novice in two

critical processes in the development of a text: generativity and reflectivity (Collins et al., 1989; Daiute & Dalton, in press). The first, generativity, as the name implies, deals with the generation of ideas and questions related to composition. For example, a teacher working with a student on the development of a creative story might ask "and then what happens?", leading the student to ponder the next idea for the story. The second, reflectivity, centers around urging the student to engage in a metacognitive process, delineating the relationships between the student's ideas and how they were (or might be) expressed. Reflectivity includes reconsidering and evaluating the written text in terms of some specific goals for the novice (Daiute & Dalton, in press). As Daiute and Dalton point out, an expert modeling reflectivity (and facilitating generativity) can be of great assistance to a novice composing a text, as the novice might not otherwise engage in the two processes.

Collaboration between peers: the novice/novice relationship. Based partially on the concept of "cooperative learning" (Johnson & Johnson, 1979) and the research centered around peer collaboration and its relation to writing and problem solving (Daiute & Dalton, 1988; Dyson, 1989), much attention has been given to the prospect of collaborating peers and in what ways they are both similar and different from the collaborating expert and novice (Daiute & Dalton, in press).

In a comprehensive review of the literature, Daiute and Dalton (in press) posit several advantages to peer collaboration.

First and foremost, children who work together in the composition of a text direct themselves to a greater achievement in writing (Daiute & Dalton, 1989; Dyson, 1988). Concurrently, research has shown that when collaborating, children exert much effort and develop their skills in areas such as writing and problem-solving (Daiute & Dalton, in press; e.g., Daiute, 1989; Dickensen, 1986). Further, children have the ability to engage in the complex process of reflectivity as they urge each other to analyze jointly written texts (Daiute & Dalton, 1988).

When collaborating, it is not uncommon for children to have conflicting ideas during text composition. Such "cognitive conflict"--disagreeing, arguing, and contesting (Daiute & Dalton, in press)--leads to a joint evaluation of ideas, a reflective process. Children are more likely to reformulate their conceptualization after such a conflict with a peer, as compared to solitary writing that often goes unchallenged (Daiute & Dalton, in press). Conflict during collaboration, however, and the strategies children use to resolve it, tend to differ according to peer friendship status (see above), and should be kept in mind as a factor in the outcome of this reflective process in composition.

Although this reflectivity may be an immature version of the "expert-induced" reflectivity described earlier, nevertheless this "novice-induced" version carries with it the similar benefit of self-evaluation: a more developed text.

As with the reflectivity, analogous to the "expert-induced"

generativity is a "novice-induced" version. That is, children tend to be able to generate new ideas and expand on existing ideas with more success when collaborating with peers as compared with solitary writing (Daiute, 1986). This creative, generative process used by children is often a function of linguistic "play" (Daiute & Dalton, in press), where children experiment with the phonemes, the morphemes, and the rules of standard written language. Through such play, collaborating children are able to experience the diversity of options available to them when writing; they are able to prompt each other and themselves to develop ideas. As Daiute and Dalton (in press, p.7) explain:

> Through play, children introduce familiar and salient topics and processes that provide a context for acquiring new knowledge and mastering new skills. In the contexts of play themes like romantic relationships and war games, children play with a new vocabulary, spelling, punctuation, text organization, and character development. As they introduce their own themes, needs, and agendas to a school-based task like collaborative writing, children draw on their own expertises, like their penchant to play and to explore.

It appears, then, that the style of general play in which most children engage during everyday situations is utilized in the scholastic environment as well, leading to a reservoir of newly fabricated ideas or combinations of ideas. And importantly, just

as in simple creative play on the schoolyard, each member of a pair (or group) brings to an interaction a multivariate collection of experiences, some shared equally with the other children, and some equivocally distinct in holistic quality. These differences in experiences that children bring to an interaction can often lead to the designation of an inherent "expert"--the child with the most exposure to a specific experience.

The novice as an expert. According to Vygotsky (1978), each child operates under a constraint of a "zone of proximal development," which is the area of cognitive ability ranging from what the child can independently accomplish to what the child can potentially accomplish if given appropriate prompts. As Daiute and Dalton (in press) put forth, a child's zone of proximal development is "relative and dynamic." When children are paired with each other, neither may reach the far end of their zones, as might happen when working with an expert adult, but both certainly experience growth. As mentioned above, children enter a collaboration with different experiences and different "expertises." As the collaboration between peers unfolds, the usefulness of the various expertises the children bring to the interaction oscillates (Daiute & Dalton, in press). That is, one child may be an advanced speller, while the other might be much more creative. When issues of spelling or creativity appear during a writing task, for example, the respective expertises of the pair will emerge.

What we have considered so far, then, is that: (a) an ignorant novice can learn much knowledge from the erudite expert; (b) children assume the role of novice to the expert teacher in the school system, but (c) when children collaborate, inherently many of the beneficial aspects of the expert/novice relationship are evident--albeit qualitatively different to some degree; (d) at specific points in a collaboration one of the members is likely to be more of an expert concerning an issue or idea than the other(s) and accordingly, (e) the novice-turned-expert can potentially contribute to the overall collaboration in an analogous manner as the adult expert, with both members of the collaborating pair gaining from the interaction. With this in mind, let us now examine the brief literature precursor to the present study.

Colette Daiute (1986) explored systematically the relation between collaborating peers and the texts they produce during a writing task. Daiute also described the difference between individual and collaborative texts, with half of the 43 subjects writing six individually-authored stories and half writing 4 stories collaboratively with a peer (after a pre-collaboration individual writing session and followed by a post-collaboration individual writing session).

Daiute (1986) found that the children who collaborated had a greater text length than in their individually-written pretests, compared to the control group (no collaboration) who only

slightly increased their text length. This finding is evidence that during a peer collaboration period, successful strategies for writing are interchanged between authors to the extent that both leave the collaboration with the ability (or motivation) to increase productivity. Daiute also found that when collaborating and a conflict arises, the person at the keyboard often has the final say in what is written, and the conflict subsides. Further, during the collaborative talk of the peers, Daiute found that there was more of the conversation centered around the story content (a quality of an "expert" or experienced writer) than would have been expected considering the inexperience of the writers. This supports the notion that the child-novice can ascend to a higher "expert" level periodically during a collaboration. Daiute concluded that children can definitely learn from each other during a collaborative task, although the "co-teaching is not explicit."

In a related investigation, Daiute and Dalton (in press) provided the impetus for the current study. Daiute and Dalton were interested in the nature of the peer collaboration process, in what young children who do not have much experience in writing can learn from a joint writing project, and in how children may benefit from a "changed representation of literacy skill" after a peer collaboration.

The experimental design employed by Daiute and Dalton (in press) allowed for 14 children (8 girls, 6 boys) who wrote two individually-authored texts, followed by two texts written in

collaboration with the same peer, another individually-written text, a third collaboratively-written text (with the same peer as the previous two), and a final individually-authored text. In addition to the writing tasks, the collaborative sessions with the children were tape recorded, and the researchers took observation notes. In pairing the collaborating children, a specific attempt was made at joining children who would benefit from each other's "personal, social, or academic strengths." The children were given a prepared story prompt such as "Write a story about a child who gets lost in the city," along with two vocabulary words the children should try to use in the text and then allowed to write for about 35 minutes, including a time for revising stories if they wished. The resulting texts, the observation notes, and the transcribed tape recording of the collaboration served as the basis for analyses.

Daiute and Dalton (in press) found that children increased the frequency of specific story elements (such as character use, events, and so forth--see Daiute and Dalton, in press, for the comprehensive list) after collaborating with a peer. This lends itself to the inference that texts written after a collaboration task have a higher holistic quality than texts written before a collaboration task. That is, in this examination children tended to learn from each other's literacy strengths and implement some of them in an individually-written text later. Daiute and Dalton also found that the children's collaborative talk was directly related to the change in story element frequency, with

approximately 95% of the changed story elements being the focus of the children's conversations. Perhaps most importantly, the children in this study alternated the expression of their different expertises, and this determined the change in story elements mentioned above. Hence, children who typically serve the role of novice metamorphosed into experts at different points during the collaboration and this led to the growth of both authors' literary ability (as measured by story element change).

Conclusion

It appears, then, that even if qualitatively inferior to the traditional expert/novice relationship, collaborating peers can interchangeably become "experts" and facilitate the growth of both members of the dyad. Taken collectively with the literature presented in the earlier sections on friendships, we designed a study to answer the following questions: (a) how exactly does the friendship relationship affect stories written by collaborating peers?; specifically, (b) which characteristics of the composition will be affected by the joint authorship, and (c) will stories written by collaborating friends be more or less qualitatively mature than those written by collaborating nonfriends and individual authors?

The investigation described in the next section serves a dual role. First, it is meant to answer the questions outlined above. Second, and perhaps more importantly, it is meant as an exploratory study, as collaborative writing and friendship have

yet to be systematically studied together.

Note: This paper is being presented as partial fulfillment of the requirements for the Summa cum laude level of honors in the University of Minnesota College of Liberal Arts. The information provided herein is part of a larger, ongoing investigation at the Institute of Child Development, and is presented as such. Results and discussion found within this paper should be considered preliminary, as only a small portion of the complete data set has been analyzed in conjunction with this honors thesis.

Methods

Subjects

Sixty 4th-grade children participated in the study, thirty-four males and twenty-six females. All attended the same St. Paul, Minnesota magnet school (math and science oriented). Consent from subjects and their parents for participation in the study was obtained by means of a descriptive letter to the parents, and a brief presentation describing the study to the subjects. Parents were asked to return a consent form that was provided with the original letter, whether or not they had given consent. After three days from the date the original letter was sent to the parents a second, identical letter, was sent home with the children to the parents who had failed to respond. Three days after the second letter, a third identical letter was sent. All children from the three participating classrooms who had received parental consent (88% of the students) by the cutoff date (three days after the third letter was sent to parents) participated in the study. As described later (see Sociometric assessment) the data from some children were excluded.

Experimental design

The experiment utilized a within-subjects design. Each student completed four sessions, administered not less than 3 days and not more than 7 days apart. Because of scheduling conflicts, however, there were a few deviations from the time allowance between sessions. The data from these subjects did not

differ from the corpus enough to warrant exclusion and hence were included in analysis (see Results). The subjects were assigned to one of three experimental conditions: Individual-Only, Collaborative-Friends, and Collaborative-Nonfriends, based on the results of the sociometric assessment previous to the onset of the study (see Figure 1 for a schematic illustration of design).

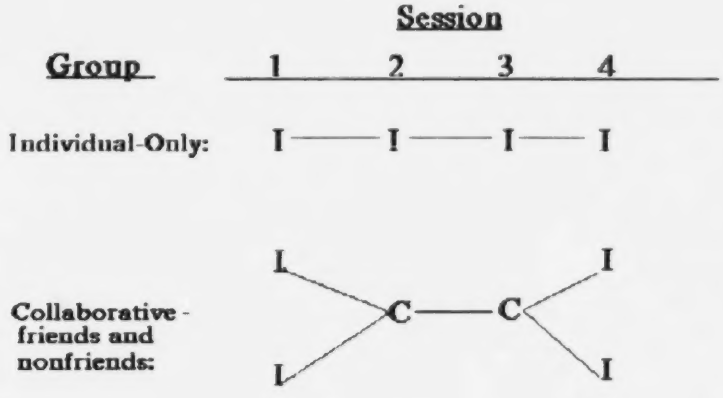

Figure One. Individual (I) and collaborating (C) authorship of stories written by subjects placed in the Individual-Only and Collaborative-friends and -nonfriends groups.

Sociometric Assessment

A sociometric assessment was given to children in each of the three participating classrooms, adapted from Asher et al. (1979).

Procedure of assessment. The students were asked to select, from a list of all same-sex classmates, the three children they "liked to play with most." Next, the subjects were asked to rate each child in the class on a Likert-type scale on the basis of "like most" (1) to "like least" (5). To facilitate the children's understanding of this scale, cartoon faces were placed directly above the corresponding scale number. A smiling face was placed above "like most" (1 on the scale), a face with a slight grin was placed above (2), a neutral face above (3), a face with a slight grimace above (4), and a face with a frown above "like least" (5). The children were then asked if they had a best friend in their class, and if so what that child's name was. Finally, the children were asked to respond in writing to seven questions regarding their age and their favorite color, song, class, food, television show, and ice cream flavor. These questions served the purpose of distracting the students from the sociometric assessment they had just completed, so as not to leave the children pondering how they were rated by their peers on the sociometric assessment.

Condition assignment. After the completion of the in-class sociometric assessment, a standardized sociometric score was

assigned to each participant. Controlling for sex, classroom affiliation, and the sociometric score, the children were placed into one of three conditions: (a) Individual-Only, (b) Collaborative-Friends, and (c) Collaborative-Nonfriends. Twelve children in the sample of 60 were randomly placed in the Individual-Only condition. Twenty-two subjects were placed in the Collaborative-Friend condition which was comprised of two-subject pairs, with each member of the dyad meeting 2 criteria: (a) each member nominated the other among the three s/he "likes most" in the class, and (b) each member gave the other a rating of 1 or 2 on the 5-point scale used in the sociometric assessment. The twenty-six subjects placed in the Collaborative-Nonfriends condition were paired with children who met 2 specific criteria: (a) neither member of the pair nominated the other among his or her three "liked most" classmates and (b) each member gave the other a rating of 2-4 (neutral area) on the 5-point scale used in the sociometric assessment. As mentioned above, group assignments controlled for sociometric status. In doing this, the majority of students receiving scores of 0 (possibly rejected children) were excluded from the investigation.

Writing Sessions

The children in the two collaborative conditions (both Collaborative-Friend and Collaborative-Nonfriends) participated in the four sessions in the following manner: during the first

session, these children wrote individual stories on separate computers, without any interaction; they composed stories collaborating during the second and third sessions; and, finally, the children once again wrote stories individually during the fourth session. As the name implies, the Individual-Only group wrote their stories individually during all four sessions.

Apparatus. Using the AppleWorks word processing program, the children composed their stories on two Apple IIe computers. The computers were placed in opposite corners of a 20'X24' room that also serves as the school's Learning Center, a room which is used both as a supply area and for special testing or special projects within the school (children were familiar with this room). Access to the room by teachers was not restricted as the subjects wrote their stories, both because of the inconvenience it would have created and the fact that the students were acclimated to background noise from the completion of similar exercises in the classroom. In addition, the collaborative sessions (see Procedure) were taped with two standard desk top audio recorders with built-in microphones, which were placed in view of the children, not more than three feet away from the closest subject.

Procedure. Prior to the onset of the study, four tasks or story prompts (Appendix A) were prepared similar to those used by Daiute and Dalton (1989). To equate the children in their previous exposure to the information needed to write stories based on the prompts, it was decided in consultation with the

children's teachers that the rain forest (no specific rain forest was designated) should be used as the main topic for the four tasks. The subjects had recently completed a classroom learning unit based on the rain forest.

Each story prompt had three elements. First, each involved the writer imagining that s/he had been transported to the rain forest. Secondly, each prompt mentioned the existence of a character, either human or animal. Finally, each story prompt posed a "problem statement;" that is, a brief suggestion was given that served as a springboard for the subjects' stories.

The subjects were taken from the classroom throughout the normal school day for the approximately thirty-five minute session. When the experimenter and the children entered the room, the children were directed to sit at a table that had an 11" X 14" piece of paper and marker placed in front of the chair. After being seated, the subjects undertook a prewriting exercise.

Prewriting. Since prewriting tasks have been shown to enhance the child's ability to structure ideas and convey them on paper, the children in this study were given five minutes to engage in such an exercise. The type of prewriting utilized for this study is called "clustering," where a main idea is placed in a circle in the middle of a piece of paper with related child-generated ideas written down connected to this central idea by a series of lines (Figure 2).

The children were given up to five minutes to "write down as many things as you can think of when you see the word (hungry,

lost, animals, or burning - depending on the story prompt used)." In order to allow the subjects the opportunity to finish their last thought, they were allowed to finish writing one idea after the time limit of five minutes had expired. Children who finished their prewriting before the five minute limit but after at least two minutes were allowed to begin the writing task (see below). A few of the students wrote down one idea, and then exclaimed "I'm finished!" These students were told to try to keep thinking of ideas for a few more minutes, but were allowed to move on after two minutes had expired if they still wished to do so.

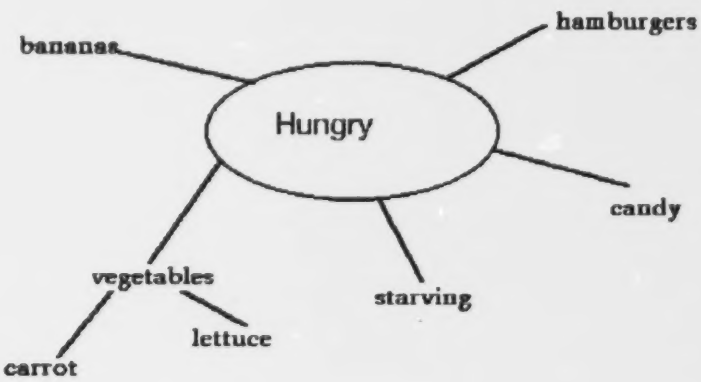

Figure Two. An example of "clustering," a type of prewriting. In this investigation, the subjects wrote down as many words as came to mind related to the central idea within the circle, within a 5-minute time period.

Writing Task. After completing the prewriting, students were directed to a computer, with the subjects' placement in the room contingent upon the experimental condition to which they were assigned. For session one, children in all three conditions (Individual-Only, Collaborative-Friends, and Collaborative-Nonfriends) wrote their stories individually. Half of the subjects started with story prompt one and half with story prompt two (see Appendix A for prompts). Story prompts one and two were chosen for the first and fourth sessions (counterbalanced), since each mentioned "...someone else from your class"; story prompts three and four were used for sessions two and three, since neither explicitly mentions a familiar human character.

1. Session One. As mentioned earlier, two computers were available for this study, and pursuantly, for the first session children were taken from the classroom two at a time. Children in the two collaborative conditions were always taken together, even when the design called for the partners to write individually. If one member of the dyad was absent from school, the session for both children was rescheduled for the next day.

Since the subjects were writing individually for the first session, each child was directed to one of the two computers. After being seated, the subjects were told an approximation of "today you're going to write a story for us" followed by the experimenter reading verbatim the appropriate story prompt. Next, the main points of the prompt were reiterated in a statement similar to "so, you can write whatever you want to, as

long as you're in the rain forest..." along with a reference to the two or three other main points of the specific prompt. The children were given the opportunity to ask any questions they might have and were reassured that they could ask the experimenter a question at any time.

There were 3 types of questions the children most often asked: those concerning word processing commands, questions about topic constraints "can I write about...," and questions about mechanics (i.e., syntax, spelling, diction, punctuation, etc.). All questions about the use of the word processor were answered immediately but laconically. For the questions about the author's ideas, the subject was told again "you can write whatever you want to, as long as..." with a reiteration of the story prompt's main points. Writing-oriented questions were not directly addressed; children were asked to "do the best you can."

The subjects were allowed to work on their stories for a total of twenty-five minutes. After about ten minutes, the children were informed, "You should be about half way through with your stories. You have about ten minutes left." At the eighteen minute mark, the subjects were informed that only two minutes remained and that they should try to finish up their stories. At this point they were also told they would then have a chance to go back and make any corrections that they wanted to. When the twenty minutes had elapsed, the experimenter told the children, "You have about five minutes to go back over your story and make any corrections you want to" and instructed them to "let

me know when you are finished." The majority of the children took only a few minutes to read over their stories, although a few used the full allotment of time for their proofreading. If the subjects believed that no corrections were necessary, they simply bypassed the proofreading portion of their composition. After the proofreading had been completed, the session came to a close as the children were escorted back to their classroom.

2. Sessions Two and Three. As mentioned previously, children in the Individual-Only condition experienced all four sessions similarly; the only variation was the use of a different story prompt for each session (as with all subjects). There were only a few other differences in the procedure for sessions two and three. The differences affected the students in the collaborative conditions and were threefold. Namely, they composed a story with a partner (either a friend or nonfriend, depending on the subjects' assigned condition), had their dialogue recorded on audio tape, and experienced the collaborative sessions with another dyad in the room using the other computer (but who could not be overheard).

The collaborating children completed their prewriting exercise independently as explained earlier (see Prewriting). Next, both members of the dyad moved to a pair of chairs in front of a computer, with one chair directly in front of the keyboard. As with the first session, the children were told that "today you're going to write a story for us" followed by the experimenter reading the appropriate story prompt. As before,

the main points of the story prompt were reiterated to the pair. Following this, the experimenter said, "You have twenty minutes to write your story, and after ten minutes it will be [the partner's] turn to type." It should be noted that the tape recorder was in view of the children, and it was explained that they were being recorded because "we are interested in the things you say when you write your story together."

At the ten minute mark, the subjects were reminded to switch typists, and instructed, "You should be about half way through with your stories. You have about ten minutes left." After eighteen minutes had elapsed, the subjects were informed that only two minutes remained and they should try to finish up their stories. At this point they were reminded they would then have a chance to go back and make any corrections that they wanted to make, "just like last time [their previous session]." The experimenter announced when the twenty minutes had elapsed, and told the children, "You have about five minutes to go back over your story and make any corrections you want to make. Let me know when you are finished." As with the first session, children who believed that they didn't need to make any corrections were allowed to bypass this final step. After the proofreading period had been completed--either after 5 minutes or earlier if the subjects thought they were done--the session came to a close and the children were brought back to their classroom.

3. Session four. The fourth session was conducted exactly as session one. All children worked independently on their

writing tasks, receiving the final novel story prompt. As before, subjects placed in one of the collaborative conditions (friends or nonfriends) experienced the session concurrently but individually. The Individual-Only group completed their last session as in the previous three.

At the conclusion of this session, all subjects were given their choice of some stickers and a brilliantly colored pencil as a prize. The children were thanked for their participation and returned to their classrooms.

Coding scheme

Adapted from Daiute and Dalton (in press), a coding scheme was developed to facilitate understanding and analysis of specific aspects of the written narrative (Appendix B). Of particular interest for this study were five main elements found in most texts, especially in creative writing in standard written English: story elements, markers, nonstandard written English features, literary elements, and interpersonal orientations.

Story elements. Under the rubric of story elements, nine coded categories served as the main focus: character, event, object, explanation, goal, ending, problem, solution, and setting. Most of the codes within this scheme needed to be subcoded to further make explicit the aspect of the story element category of interest. This subcoding was accomplished with a series suffix codes added to one of the main nine story elements listed above. The codes along with the subcodes, or suffixes,

will be described briefly here and can be found in full detail in the appendices (Appendix B).

Character use and development within a story was the first element of interest. Each time a character appeared or was referenced within the text it was coded as either a person, animal, or an inanimate character. Further, whether the character was in the first, second, or third person and whether it was used in the singular or plural was also noted. There were also instances when a character was given a certain attribute (i.e., tall, short, dirty), a specific feeling or emotion (i.e., happy, hungry, scared), or a cognition (i.e., "He thought we should..."). Suffixes were included in the coding scheme to mark these occurrences.

Events (some type of action characterized by a verb) occurring within the text were of interest and were coded as either occurring in the past, present, or future. In addition to the tense of the event, conditional events were recorded as well. Some events were also covered under other codes, such as the introduction of or reference to an ending to the story, a problem, or a solution to a problem. Endings in the stories only needed to be an explicit attempt to "wrap things up" and did not have to include "The End" or other typical endings. Some endings were constructed to encompass what could be considered the story's climax and, accordingly, a suffix code was dedicated to such climatic endings. Events in the form of a problem scenario received a specific code, in addition to a suffix if the problem

was elaborated with information to further describe the problem. In almost every case, a solution to a previously introduced problem was present in the texts. However, within the stories there often existed several temporary solutions--almost a type of trial and error approach to resolving the problem. Thus, if a given solution ended the problem altogether, a resolution suffix was added to the solution code. As with the problem code, any elaboration of a solution or resolution received another suffix.

Other codes were objects, explanations, goals, and settings. The object code was reserved for the existence of any physical object within the text that did not serve the role of a character (above). Some objects were given attributes (i.e., "the green plants," "the splashing waterfall," etc.) within the stories, and hence a suffix was created to mark these. Explanations that were present in stories referred to any attempt of the author to further explain the actions of a character or the meaningfulness of an event beyond the minimum information inherently contained in the original reference. Along with explanations, some authors explicitly mentioned goals of the characters or of the story itself if no characters were present (i.e., "burning the forest is bad; it must be stopped"). Finally, within the story element category of codes, attempts to describe the initial settings of the texts were noted.

Markers. Daiute and Dalton (in press) suggested using three markers prevalent in creative stories written by children: story markers, time markers, and linkers. Story markers are explicit

opening words or phrases that set the mood of a story. For example, "once upon a time," "one day," and "once" found at the beginning of a text would receive a story marker code. Time markers, similarly, are explicit references to the time or time frame of the story (i.e., "three days later," "Wednesday morning arrived," etc.), including specific times of character actions but excluding vague or ambiguous references such as "next," "then," and so on. Finally, the most prevalent marker within the stories was the linker. Linkers are defined within the coding scheme as the use of a grammatical conjunction at the beginning of a unit of thought (T-units - see Results) often but not necessarily in the place of punctuation as a sentence delimiter.

Nonstandard written English features. Based on the age of the subjects, their limited experience with standard written English, and dialect and cultural influences from the subjects' multifarious backgrounds, a category of codes was created to capture the instances of nonstandard written English. There were two main codes within this category: deviations from standard written English in the area of syntax, and aberrations in mechanics.

Because of its all-encompassing nature, the syntax code needed to be subdivided into three suffixes: word order, grammar, and word usage. Within the construction of a sentence, the young authors occasionally confused standard word orders. For example, "me and Brian" as compared with "Brian and me (or I)," and "so after started we to run" are phrases with word order deviations.

In cases where grammatical structures were not in standard written English form, the grammar code was utilized. Although "grammar" as a code could be reduced to a collection of suffixes, it was beyond the scope of this study to microanalyze such grammatical deviations. The grammar suffix was applied most often to tense shifts (i.e., "We talked about food and are going through the forest."), inappropriate word endings (i.e., "we made a planning" instead of "we made a plan"), and subject-verb/noun-pronoun number agreement (i.e., "we was," "they is," "I had a hamburger and ate them," and so forth). Finally, some nonstandard syntax use were coded with the suffix word usage. In general, any time an English word was used in a nonaccepted manner or a necessary word was omitted, this suffix was applied. For a more detailed description of the interrelation among the suffixes for the syntax code, refer to the appendix (Appendix B).

The other major code within the Nonstandard Written English Features category was the mechanics code with its three suffixes: deviations in capitalization, spelling, and punctuation. The written English rules governing the mechanics of a sentence or paragraph are rather straight forward. Nevertheless, because of the variant writing styles employed by the authors, specifications for the use of these suffixes needed to be made (Appendix B). Not every thought needed to be capitalized or delimited with punctuation; the definition of the mechanics code allowed for the (over)use of compound and complex sentences. Hence, the capitalization and punctuation suffixes were used to

code deviations from the minimum requirements of written English sentence mechanics. The spelling suffix was reserved for explicit errors in the spelling of a word. That is, "heard" spelled as "hird" received the spelling suffix, but spelled as "herd"--a different word in English being misused--mandated the word usage suffix. As with the syntax code, for a more detailed description of the definitions of and relationships between the mechanics suffixes, refer to the appendix (Appendix B).

Literary elements. Of interest for this study (and hence reflected in the coding scheme) were four codes within the category of literary elements: title, target word use, dialogue, and salutation. As the name implies, the title code reflects an author's attempt to title a story. The target word code was reserved for any form of a specified word appearing in the text. Specifically for this study, over the four sessions, the subjects were asked to try to use eight target words (see Procedure and Appendix A). Each time the author(s) included one of these words or a form thereof the target word code was applied. Also in the literary elements category, the dialogue code was utilized to mark any direct or indirect conversation within the text itself. Vague references to dialogue were not included in this code (i.e., "we talked for awhile," "she was whispering," and so forth). A salutation was any attempt of the author to "salute" the reader, such as "by Kari" or "Love - Ben."

Interpersonal orientations. Owing to the main focus of this study, collaboration between friends vs nonfriends in writing, a category of interpersonal orientations was created encompassing the following codes: affect, name, friend, and mutual orientations. The affect code referred to any direct or indirect application of emotion in the form of an "emotion word" such as "hate," "love," "like," "ick," and so forth. As the code implies, any use of a proper name or proper noun received the name code. The author's use of his/her own name within the text existed as a suffix to the name code. Just as the affect code reflected a reference to emotion, the friend code reflected any reference to a friend or friendship in general, including words such as "buddy" and "pal." Finally, within the interpersonal orientation category of codes, the mutual orientations code was applied to an explicit collective action of the main characters. Words such as "our's," "we," "us," "Julie and I," etc., were coded as a mutual orientation, but any references to characters in the second or third person plural were not.

Coder Reliability

After a rather extensive training period focused on the definitions of the various categories, codes and suffixes (subcodes) included in the coding scheme, the reliability of the individual codes and suffixes was calculated (Appendix C). Assessment of the reliability was based on approximately 30% of subjects' stories. The reliability score for each code and

suffix was calculated with the following equation:

$$\frac{\text{Total number of agreements}}{\text{Total number of agreements + total number of disagreements}}$$

Ratings of texts

In order to assess global differences among the groups in the stories the children wrote, four naive adults (no above-average experience with language and composition in childhood) blind to friendship status and condition assignment rated the stories using a 10-point Likert-type scale from one (lowest) to 10 (highest). The stories were rated on five measures: overall **quality**, **flow** of the narrative, use of **standard written English**, **complexity of ideas** expressed, and **creativity**. The mean score of each rating was used for the analyses of the data (see Results). Reliability of each rating was computed as the average of the total agreements divided by the total agreements plus total disagreements between each rater. An agreement between raters was marked when they were within plus/minus 1 rating point of each other. Reliability scores are shown in Table 3.

Results

A small segment of the data from the experiment are presented and analyzed here. Although the subjects participated in four sessions, the analyses presented are based on the second of the four sessions--the first session during which stories were written collaboratively. Further, because of time considerations, the story elements codes were not applied to the data set prior to the preparation of this manuscript.

The texts produced by the subjects were broken down into utterances, or thought-units (t-units; Hunt, 1965). Each thought unit was then coded, with the coder blind to the author's friendship status. Statistical analyses were based on the proportion of code frequency and word count for each text. This controlled for story length in examining compositional patterns. The three experimental conditions, Collaborative-Friend, Collaborative-Nonfriend, and Individual-Only were compared using both component scores for each code (variable) and composite scores (element), by means of a oneway ANOVA followed by the B-Tukey test when significant or near-significant main effects were found.

Errors in use of standard English

In terms of errors in the use of standard written English, a few significant main effects emerged (Table 1). Significant

differences ($p<.05$) were found in the **syntax** composite score, with the Individual-Only group making proportionally more syntactical errors in their texts than the nonfriends and the friends (Table 1); the latter two groups did not differ significantly from one another. The overall difference in syntax scores owes greatly to a significant difference ($p<.05$) between groups on the component scores for **word usage**. The individual authors made nearly five times as many word use errors per text as the nonfriends and approximately 3 times the errors made by friends (Table 1); no significant difference in mean scores was found for friends and nonfriends on this measure.

Mean scores among groups on one other variable was significant beyond $p<.10$: individual authors made more **spelling** errors than both friends and nonfriends, with the latter two groups not producing significantly different scores. The three groups did not differ in the composite **mechanics** scores nor in total errors (Table 1).

Literary Elements, Markers, and Interpersonal Orientations

As shown in Table 2, there were no significant differences between groups in the inclusion of **literary elements** in the written narratives. Similarly, neither the composite score for **markers** nor any of the component scores within the marker composite reached significance (Table 2).

Table 1

Means, standard deviations, and analysis of variance results comparing stories written by friends, nonfriends, and individuals on errors in use of standard English (composite and component scores).

	Experimental Condition							
	Friend		Nonfriend		Individual		F	p
Score	Mean	S.D.	Mean	S.D.	Mean	S.D.		
A. Syntax (composite)	.038[ab]	.024	.021[a]	.02	.073[b]	.08	3.61	.04
1. Grammar	.02	.004	.009	.01	.036	.03	2.15	.13
2. Word Usage	.02[a]	.016	.011[a]	.014	.047[b]	.053	4.51	.02
3. Word Order	.002	.004	.002	.004	.000	.000	1.54	.23
B. Mechanics (composite)	.168	.088	.191	.081	.227	.164	.74	.49
1. Capitalization	.047	.059	.045	.039	.043	.051	.01	.98
2. Punctuation	.046	.044	.08	.07	.079	.077	1.00	.38
3. Spacing	.037	.041	.025	.023	.03	.028	.44	.64
4. Spelling	.04	.026	.042	.025	.075	.059	2.92	.07
C. Total Errors	.206	.104	.212	.087	.3	.226	1.43	.25

Note: Different superscripts indicate a significant difference ($p<.05$) between group means.

Table 2

Means, standard deviations, and analysis of variance results comparing stories written by friends, nonfriends, and individuals on use of Literary Elements, Markers, and Interpersonal Orientations (composite and component scores).

	Experimental Condition							
	Friend		Nonfriend		Individual		F	p
Score	Mean	S.D.	Mean	S.D.	Mean	S.D.		
A. Literary Elements (composite)	.032	.027	.033	.025	.031	.018	0.03	.97
1. Title	.001	.004	.001	.004	.001	.003	0.03	.97
2. Target Words	.014	.009	.011	.013	.022	.018	2.01	.15
3. Dialogue	.014	.02	.02	.026	.007	.014	1.19	.32
4. Salutation	.003	.005	.002	.004	.001	.002	0.81	.45
B. Markers (composite)	.054	.026	.044	.027	.054	.036	0.48	.62
1. Story Marker	.006	.005	.004	.006	.004	.005	0.88	.43
2. Time Marker	.002	.005	.005	.012	.005	.007	0.51	.60
3. Linker	.046	.025	.035	.026	.045	.031	0.65	.53

Table 2 (continued)

Means, standard deviations, and analysis of variance results comparing stories written by friends, nonfriends, and individuals on use of Literary Elements, Markers, and Interpersonal Orientations (composite and component scores).

	Experimental Condition							
	Friend		Nonfriend		Individual		F	p
Score	Mean	S.D.	Mean	S.D.	Mean	S.D.		
C. Interpersonal Orientations (composite)	.079	.049	.055	.053	.032	.035	2.91	.07
1. Affect	.014	.015	.002	.005	.01	.018	2.25	.12
2. Name	.005	.017	.002	.005	.005	.012	0.29	.75
3. Author's Name	.025[a]	.024	.004[b]	.008	.007[b]	.014	5.78	.01
4. Friend	.004	.006	.002	.004	.001	.002	1.90	.16
5. Mutual Orientations	.055	.05	.049	.056	.017	.023	2.46	.10

Note: Different superscripts indicate a significant difference ($p<.05$) between group means.

The differences between groups on the mean composite score for the **interpersonal orientations** element reached borderline significance ($p<.07$, Table 2). An independent t-test revealed that friends included interpersonal orientations in their texts significantly more often than individuals ($p<.02$), but not more often than nonfriends, who in turn did not differ in proportion of interpersonal orientation when compared with individuals. Among the interpersonal orientation component scores, the groups differed significantly for the **author's name** variable. The friends used their own names in their texts significantly more often than the nonfriends as well as the individuals (Table 2), whereas the latter two groups did not differ from one another. Both friends and nonfriends made more frequent reference to **mutual orientations** than did individuals ($p<.10$), although the former two groups did not differ from each other (Table 2).

Ratings of texts

As described above (see Methods), in order to assess global differences among the groups in the stories the children wrote, stories were rated on five measures: overall **quality**, **flow** of the narrative, use of **standard written English**, **complexity of ideas** expressed, and **creativity**. The mean score of each rating was used for the analyses presented below.

Flow of narrative and standard English use. The flow of each narrative, that is, how well sentences related to others in terms of content and construction, did not differ among the three

groups. Similarly, no differences were found among the groups in their use of standard English (Table 3).

Complexity of ideas. Complex ideas reflected the authors' attempts to compose a story in a more advanced form. The mean scores of the complexity of ideas for the three groups were significantly different (Table 3). Although friends and nonfriends did not differ in the complexity of their ideas, both groups used significantly more complex ideas than individual writers (Table 3).

Creativity. A significant difference was also found among mean scores of creativity for the three groups (Table 3). Friends' stories were rated as significantly more creative than individually-written stories. Stories written by friends did not differ from those written by nonfriends, however, nor did stories written by nonfriends and individuals.

Quality. Each text was rated for overall quality, a measure that encompasses the other ratings (flow, standard English use, complexity of ideas, creativity). Group means on the quality measure were borderline significantly different ($p<.06$, Table 3). Independent t-tests revealed that most friends produced more qualitative texts than individuals ($p<.07$), but no difference was found between friends and nonfriends or between nonfriends and individuals in terms of quality.

Table 3

Means, standard deviations, and analysis of variance results comparing stories written by friends, nonfriends, and individuals on ratings of Quality, Flow, Standard English Use, Complexity of Ideas, and Creativity.

	Experimental Condition							
	Friend		Nonfriend		Individual		F	p
Rating	Mean	S.D.	Mean	S .D.	Mean	S.D.		
A. Flow of Narrative (.65)	5.41	1.13	5.29	.85	4.54	1.97	1.35	.27
B. Standard English Use (.67)	5.18	1.16	4.83	1.03	4.10	1.71	1.99	.15
C. Complexity of Ideas (.59)	6.02^{a}	.83	5.73^{a}	.92	4.44^{b}	1.81	5.22	.01
D. Creativity (.66)	6.05^{a}	1.32	5.65^{ab}	1.31	4.35^{b}	2.09	3.54	.04
E. Quality (.75)	5.68	1.00	5.42	.72	4.31	2.18	3.00	.06

Note: Different superscripts indicate a significant difference ($p<.05$) between group means. Reliability for each rating is shown in parentheses () below each category.

Discussion

As mentioned, this thesis presents preliminary analyses (based on only one story per subject) from the larger study described in the Methods section (four stories per subject). Hence, all findings and discussion within this honors thesis should be viewed as preliminary.

We are interested, overall, in two main questions. First, how will the friendship relationship affect stories written by collaborating peers? And the second, more specific question, will friends produce qualitatively advanced texts more so than nonfriends? In addition to a discussion regarding the main questions of this thesis, the general effectiveness of collaboration vs. individual writing will also be addressed.

When viewed collectively, the results show that not all measures were affected by the social conditions (friends or nonfriends collaborating). In fact, the three groups differed on only a handful of the measures. The evidence suggests, however, that the children in the social conditions produced the most qualitative texts, with some differences owing to peer collaboration generally and others more specifically to friendship status.

Errors in use of standard English

The evidence suggests that collaborating peers made fewer

errors than individual authors. Specifically, individuals made more spelling errors and more frequently used words incorrectly. As described earlier, a word use error referred to the authors' incorrect use of an English word--such as using the homophone "are" when "our" was meant. Since collaborating peers monitor the collective effort, it is likely that potential word use errors, as with potential spelling errors, were noticed by one member of the dyad and corrected. This effect lends some support to the shifting expertises described earlier (see Introduction)--collaborating authors complemented each others' expertises to produce a more "error free" text.

Among the nonstandard English use variables, only the composite syntactical errors score shows a friendship effect. Collaborating nonfriends made fewer syntactical errors than did individuals, with no differences among the other groups. What this difference suggests is uncertain. It might be that collaborating friends put forth more effort in the inclusion of interpersonal elements in their texts, paying less attention to syntax than nonfriends. Further analysis of the data might shed some light on this question.

Literary Elements, Markers, and Interpersonal Orientations

As described earlier (see Results), there were no differences among groups in composite scores for literary elements nor in the composite scores for markers. There were, however, friendship effects found among the interpersonal orientations scores: friends included more interpersonal

orientations ($p<.07$) in their texts than did individuals, with no differences between the other groups.

Specifically, friends included their own names (**author's name**) somewhere within their texts significantly more often than did nonfriends and individuals, with no difference in frequency between the latter two groups. The inclusion of their names along with the more global increase in interpersonal orientations seemingly add an affectual component to the friends' texts that others might not as frequently include, which might lead to the text being viewed as more qualitative.

Among the literary elements, markers, and interpersonal orientations, only one collaborative effect was found: collaborating peers included more mutual orientations ($p<.10$) than did individuals, with no apparent friendship effects. Taking into account the collective nature of collaborative authorship, this difference is likely the result of the authors capturing their mutual authorship in their texts.

Ratings

The ratings of the texts for the three groups did not differ significantly on the measures of narrative flow and standard English use. Seemingly, the stories written by subjects in all three groups were perceived by the raters as equitable in "errors" or conversely, in the correct use of standard English. It follows, then, that the flow of the narrative, most affected by the syntax and mechanics of standard English, would also be perceived as similar among stories written by the subjects.

Ratings were significantly different, however, for the other three measures: complexity of ideas, creativity, and overall quality.

The evidence suggests that collaborating peers compose stories with more complex ideas than individual writers. This finding reflects the collective nature of the peer collaboration; two children might individually have rather simple ideas, but through the collaboration these ideas are synthesized into a more complex structure.

Creativity received a higher average rating in stories written by collaborating friends than those written by the other groups. As nonfriend and individual authors tended to write similarly creative stories, the higher creative ratings on the friends' texts appears to be a function of the friendship status. Since friends are more secure in their relationship than nonfriends (see Introduction), it follows that they might be more willing to express their creativity and have their creative ideas amended by their peers, producing the more creative stories than the other groups.

Taking into account their perceptions of the other categories (flow, standard English use, complexity of ideas, creativity), the raters examined each text for an overall quality. As shown in the Results section, collaborating peers, regardless of the friendship status of the pairs, authored stories that were rated as having a higher overall quality than the individually written texts ($p<.06$). This finding lends

support to the peer collaboration literature, namely that through their generativity and reflectivity, along with their shifting expertises, collaborating peers write qualitatively more advanced texts than solitary authors.

Of specific interest here is whether the collaborators will learn from their collective experience and demonstrate their knowledge in a later individual writing task, as in related studies (e.g., Daiute & Dalton, in press). This question will be answered upon the completion of analyses of the four stories the subjects wrote, particularly the last, individually written text.

Finally, of interest is the relationship among the ratings. As mentioned, stories did not differ by group for standard English use. There were, however, significant differences in ratings for complexity, creativity (both $p<.05$), and overall quality (borderline, $p<.06$). The absence of differences for the use of standard English leads to the supposition that the raters did not use the quality of English use to make their ratings on the other measures. That is, the three measures, overall quality, complexity of ideas, and creativity, received significantly different ratings among groups for reasons other than differences in correct use of written English.

Conclusions

As an exploratory study, the results presented earlier show that the social conditions (friends or nonfriends collaborating) did not affect the final product--the written text--on every

measure. Based on the scores that differed significantly among the groups, however, certain conclusions can be drawn. Collaborating peers authored more qualitative stories, with fewer errors and more complex ideas than stories written individually. Further, friends collaborating composed to story with a more affective and creative content than stories written by individuals. It appears, then, that both collaboration and friendship status affect certain characteristics of a written text--a finding that will be elucidated with the complete analysis of the data.

Future Research

On the top of the list for future research concerning friendship status and collaborative writing is the complete data analysis; only one-fourth of the data were analyzed at the time of this thesis preparation. The significant differences found in this preliminary analysis will either be strengthened or fade into a borderline-difference area. The near-significant differences presented in this study will become either significant or nondifferential with further analysis. Finally, then, the results and discussion presented here will stand on a more solid foundation.

The global ratings of the stories written by the children were completed by naive raters, that is, adults with no specific training in language and composition during childhood. Although no major differences would be expected, it will be interesting to

determine if professionals in the field of language and composition will give these stories similar ratings--a comparison to be made in the near future.

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Appendix A: Story Prompts

Hunger prompt:
1. Imagine that you are transported to the rain forest. When you get there, you meet someone else from your class. After walking around all day, you realize that you're hungry. There is no familiar food in sight.

In your report,
- -write about the event.
- -tell why the event was important.

Use the words survive and planning in your story if you can.

Lost prompt:
2. Imagine that you are transported to the rain forest. When you get there, you see someone else from your class. After walking around together for a while, you become lost.

In your report,
- -write about the event.
- -tell why the event was important.

Use the words discover and cooperation in your story if you can.

Animals prompt:
3. Imagine that you were transported to the rain forest, and spend a whole week walking around through it. You meet many animals in the forest layers, some ferocious and some not.

In your report,
- -write about the event.
- -tell why the event was important.

Use the words dangerous and habitat in your story if you can.

Burning prompt:
4. Imagine that you are transported to the rain forest. After walking around, you find a huge area where people are burning trees.

In your report,
- -write about the event.
- -tell why the event was important.

Use the words conservation and destruction in your story if you can.

Appendix B: Coding for Story Elements

%ELE: Story Element. This is the dependent tier dedicated to the story elements of interest for this study. Dependent tier codes found within this category are character, event, object, explanation, goal, ending, problem, solution, resolution, and setting codes. Each will be described and defined below.

$ch# **Character.** The introduction of a character to the story. The third place in the code (#) is reserved for indexing the character in chronological order of appearance. If it is unclear as to which character in the story (already indexed) is being used or referred to, the coder should make the best guess possible. Characters appearing in the story are further coded with the suffixes **:per** (person), **:ani** (animal), and **:ina** (inanimate) in the second position of the code. The third position of the code string, the second suffix, is reserved for **:fir** (first person), **:sec** (second person), and **:thi** (third person). Finally, the third suffix (fourth position in the code string) designates whether the character is **:sin** (singular) or **:plu** (plural).

Character ($ch#) suffixes.

First Suffix (one of the following):

:per Character (person). The introduction of any type of human character (i.e., I, the man, our teacher) or the use of an already-indexed human character.

:ani Character (animal). The admission of an animal character to the story or the use of an already-indexed animal character.

:ina Character (inanimate). The introduction of an inanimate character to the story or the use of an already-indexed inanimate character.

:att Character (attribute). Specific attribute of a character (not codable as Character Feeling or Cognition, i.e., tall, sister, cute).

:fee Character (feeling). The attribution of specific affect or emotions (feeling/s) to a character in the story (i.e., happy, sad, angry).

Appendix B (cont): Coding for Story Elements

:cog **Character (cognition).** Thoughts or any other mental activity on the part of the character (not codable as Character Feeling).

Second Suffix (one of the following):

:fir **Character (first person).** The use of a character in the first person.

:sec **Character (second person).** The use of a character in the second person.

:thi **Character (third person).** The use of a character in the third person.

Third Suffix (one of the following):

:sin **Character (singular).** Explicit mention of a singular character.

:plu **Character (plural).** Explicit use of the plural form of a character.

$eve **Event.** An action, characterized by a verb. Events can be further specified with the suffixes :ela (elaboration), :pat (past tense of verb), :prt (present tense of verb), and :con (conditional event).

Event ($eve) suffixes.

First Suffix (one of the following):

:ela **Event Elaboration.** The addition of an adverb to further describe the event (i.e., "We quickly ran through the spider webs.").

:pat **Past Tense.** When using this code, the verb in the event sentence must be in the past tense.

:prt **Present Tense.** When using this code, the verb in the event sentence must be in the present tense.

:fut **Future Tense.** When using this code, the verb in the event sentence must be in the future tense.

Appendix B (cont): Coding for Story Elements

:con **Conditional Event.** The explicit use of a conditional sentence (i.e., "If the bear came after us, we would run away!").

$obj **Object.** This category is used to code an explicit occurrence of a physical object within the story (i.e., "We saw many plants" and "We found a river"). If used as an inanimate character, the object should be coded as $ch#:ina instead (see Character section above).

Object ($obj) suffixes.

First Suffix:

:att **Object Attribute.** The affixation of some type of attribute to an object.

$exp **Explanation.** The specific attempt to explain why a character carried out a certain event, or why an event happened, etc. (i.e., "The tiger ran away because we scared it.").

$goa **Goal.** An element in the story that is explicitly expressed as a goal (for example, "We went to the store to buy some milk.").

$end **Ending.** The explicit use of an ending in the story, including the final action(s) of the character(s). An ending may also include the suffix :cli (climax) and does not necessarily need to be placed in the last few lines.

Ending ($end) suffixes.

First Suffix:

:cli **Climax.** The apex or pinnacle of the story (for example, "The giant grabbed the little boy!"). Can also be coded as a resolution (below) if the climactic expression also serves as the resolution of a problem.

Appendix B (cont): Coding for Story Elements

$pr# **Problem.** Explicit use of a problem scenario (i.e., "His leg was caught in the trap.") or reference to an existing problem (i.e., "that makes me mad" where the "that" is refering to an already-indexed problem). Each problem should conceivably have a potential solution. Problems are indexed in the third position of the code (#) based on the chronological order of appearance in the story. Any solutions or resolutions (below) are indexed based on which problem they refer to.

Problem ($pr#) suffixes.

First Suffix:

:ela **Problem Elaboration.** The addition of information to further describe the problem (i.e., "I was very hungry. No food was in sight.").

$so# **Solution.** The use of a solution to an indexed problem. The third character in the code is reserved for an index number identical to the number assigned to the preceding problem. There can be more than one solution for a given problem. Pursuantly, each solution for one specific problem will have the same index number. Solutions can be suffixed with :res (resolution) and :ela (elaboration).

Solution ($sol) suffixes.

First Suffix:

:res **Resolution.** The completion of an action as the result of a problem (i.e., "We found the key and unlocked the door. We were finally safe."). This code is reserved for an explicit final and permanent solution.

:ela **Elaboration.** The addition of information to further describe a solution or resolution (for example, "Searching underneath the door mat, we found the key and unlocked the door."). If used as a suffix for a resolution, :ela should be in the second suffix position (with :res as the first suffix).

Appendix B (cont): Coding for Story Elements

$set **Setting.** The location of the story (i.e., "in the rain forest"). There must be an explicit attempt to describe the initial surroundings for the reader. Pursuant descriptions of location, such as "we ran underneath the bridge," are only coded as a setting if action within the story takes place within the new location (otherwise the example "we ran underneath the bridge" would be coded as an event ($eve - above). A setting may also take the suffix :ela (elaboration).

Setting ($set) suffixes.

First Suffix:

:ela **Setting Elaboration.** The addition of information to further describe the setting (i.e., "in the tropical rain forest near a pond.").

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%MAR: **Marker.** This is the dependent tier dedicated to the existence of various markers within the text. The three markers of interest to this study are story markers, time markers, and linkers.

$sto **Story Marker.** An explicit opening sentence or phrase, such as "Once upon a time," "One day," or "Once there was..."

$tim **Time Marker.** This code reflects a direct reference to a specific time within the story (i.e., "for 18 hours," "the next day," and "At 4:00pm"). $tim does not include vague references to time such as "once," "next," "after that," and so on.

$lin **Linker.** This code marks the use of a coordinating or subordinating conjunction at the beginning of a T-unit, often (but not necessarily) in place of punctuation that would normally go at the end of the preceding T-unit. Any main tier that begins with a coordinating or subordinating conjunction receives this code only once, regardless of the number of conjunctions present (i.e., "and so then we ran").

***

Appendix B (cont): Coding for Story Elements

%NON: Nonstandard Written English Features. This is the dependent tier dedicated to the coding of any feature found within the text that one would not find in a standard piece of written English. Dependent tier codes found within this category are $syn (syntax) with suffixes for word order, grammar, and word usage, and $mec (mechanics) with suffixes for capitalization, spelling, spacing, and punctuation.

$syn **Syntax.** Any nonstandard written English feature concerning the syntax of a sentence. Suffixes for this code are :woo (word order), :gra (grammar), and :wou (word usage).

Syntax ($syn) suffixes.

First Suffix:

:woo Word order. This suffix is reserved for a sentence that has a noticeable deviation in word order from standard forms found in written English. For example, "We found a next time dog later," and "Me and Jim went to the store." Only one code per T-unit should be applied unless multiple, distinguishable occurrences are directly evident.

:gra Grammar. This suffix refers to deviations in grammatical constructions, including shifts in an established tense for verbs in the story that deviate from accepted written English tense shifts. For example, a story beginning with "We decided to walk" (past tense) followed by "then we are tired" (present tense) would mandate use of this suffix. Each decision of the author to shift tense as such should receive this suffix. In the above example, the author had shifted to the present tense. All pursuant present tense verbs follow the author's decision to switch and hence would not be coded as a deviation. Only when the tense again shifts--back to the past tense, for example--would another $syn:gra be added. This suffix also covers deviations in word endings (i.e., "we made a planning" instead of "we made a plan") and subject-verb/noun-pronoun number aggreement (i.e., "we was," "they is," "I had a hamburger and ate them," and so forth).

Appendix B (cont): Coding for Story Elements

:wou **Word usage.** Any nonstandard written English usage of a word (i.e., "We no happy.") or omission of word needed to make an utterance flow, such as an article. Further, the use of homophones (sound the same but have different spellings and meanings), and repetitions (i.e., "and and then we") should receive this suffix. Aberations due to a tense shift from the established pattern are covered in the :gra (grammar) suffix and should not be coded with :wou. That is, if the past tense of a verb is expected (i.e., "they were sad") and the author uses the present tense (i.e., "they are happy"), the deviation is from standard grammar not from standard word usage.

$mec **Mechanics.** Any deviation from standard written English in the mechanics of a sentence. Suffixes used for this code are :cap (capitalization), :spe (spelling), :spa (spacing), and :pun (punctuation).

Mechanics ($mec) suffixes.

First Suffix:

:cap **Capitalization.** Any nonstandard capitalization found within the text. This suffix should be added for each decision made by the author(s) to deviate from standard capitalization. For example, if the entire story was written in capital letters, only one decision was made; if the author(s) writes entirely in lower case letters, one decision was made for each word that should be capitalized according to the rules of standard written English, and so forth. The first letter of a word following an omitted punctuation mark (coded as :pun - below) needs to be capitalized. If it isn't, apply this code.

:spe **Spelling.** Any explicit mistakes or errors in the spelling of a word that is found in a standard dictionary. If the written form is unrecognizable or is not a word at all the :gra suffix should be used. If a correctly spelled word is used incorrectly (i.e., "it was time for are dinner"--here a homophone), the :wou suffix should be applied. Spelling deviations due to the addition of a space (i.e., "class room" receive this suffix, not the :spa (spacing, described below).

Appendix B (cont): Coding for Story Elements

:spa **Spacing.** All explicit aberrations from standard written English spacing rules, including omission of a needed space (i.e., "we found atiger") or the inclusion of an extra space (i.e., "next , we ran"). This suffix should be used for each occurance of a spacing deviation--not for each individual "space" that is added or omitted in aberation. That is, in the example "we ran through the forest !" only one :spa suffix would be applied even though there are four unnecesary spaces before the punctuation. Similarly, in the example "after we found it ,we left" two :spa suffixes would be added for the deviations around the use of the comma (one space before and none after).

:pun **Punctuation.** This suffix is reserved for an explicit deviation from standard punctuation rules of written English. As a general guideline, there should be no more than 2 T-units per sentence (as in the compound sentence). As with the other Nonstandard Written English Features codes and suffixes, this suffix should be utilized for each deviation. In the example "he said I am lost." there are three deviations: one omitted comma after 'said', an opening quotation mark, and a closing quotation mark. The coder should strictly adhere to the rules of punctuation and avoid using this suffix for stylistic differences.

***

%LIT: **Literary elements.** This dependent tier is reserved for literary elements of interest. Codes on this tier are $ttl (title), $tar (target word usage), $dil (dialogue), and $sal (salutation).

$ttl **Title.** Any attempt to affix a title to the story.

$tar **Target Words.** The explicit use of one of the target words or a form of the target word, coded for each occurrence (Hunger prompt: survive, planning; Lost prompt: discover, cooperation; Animals prompt: dangerous, habitat; Burning prompt: conservation, destruction).

Appendix B (cont): Coding for Story Elements

$dil **Dialogue.** The use of any type of dialogue--direct or indirect--in the text (i.e., "then he told me that he was hungry," "she mentioned that she was tired," and so forth). The dialogue does not have to be accompanied by the correct punctuation to receive this code; there only needs to be an explicit attempt to convey information to the reader through the use of a character's dialogue. Note: utterances such as "we talked about the plants" and "she talked for a while" are events ($eve), not dialogue.

$sal **Salutation.** Any attempt of the writer to "salute" the reader, such as "By Cari and Kim" or "Love - Ben."

***

%INT **Interpersonal.** This dependent tier is dedicated to the occurrence of any type of interpersonal references within the text. Of interest are the codes $aff (affect), $nam (name), $fri (friend), and $mut (mutual orientation).

$aff **Affect.** The explicit use of affect in the form of an "emotion word" (for example, "love," "hate," "sorry," "ick," "yuck").

$nam **Name.** Use of a proper name or proper noun within the text. This code can also be used with the suffix :aut (author).

Name ($nam) suffixes.

First Suffix:

:aut **Author Name.** Use of the proper name of (one of) the author(s). The name of the author(s) can be found in the @participants line of the text file.

$fri **Friend.** Any reference to a friend in the story, either of the author or of a character (includes labels such as "pal," "buddy," etc.).

Appendix B (cont): Coding for Story Elements

$mut **Mutual Orientations.** The use of collective vocabulary within the story, such as "we," "us," "let's," and "ours" including the use of two characters as a collective unit ("Amy and Jen ran to the store." and "Jamie and I went...") but excluding the second and third person plural.

***

%GEM **Gem.** This dependent tier is a marker that somewhere within the utterance there was something that struck the coder as very unique and advanced taking into consideration the age of the author(s). Any time the coder reads a sentence and thinks, "Wow!" this tier should be added. At this time no codes have been assigned to this tier. It exists as a flag for future analysis.

Adapted from: Daiute, C. and Dalton, B. (1991). Collaboration between children learning to write: Can novices be masters? (in press).

Appendix C: Reliability of Codes

As mentioned in the introduction section and in various other contexts within this thesis, the Story Element category of codes was not applied during the initial coding of the subjects' stories do to the nature of the overall collaboration project currently in progress. The reliability scores presented here, accordingly, do not include scores for the Story Element codes. Reliability for these codes will be included in an article reporting the larger scope of the collaboration study.

Category	Code	Suffix	Reliability (%)
Marker	Story Marker		90
	Time Marker		83
	Linker		97
Nonstandard Written English Features	Syntax	Word order	100
		Grammar	80
		Word usage	83
	Mechanics	Capitalization	85
		Spelling	88
		Punctuation	83
		Spacing	95
Literary Elements	Title		100
	Target Words		98
	Dialogue		86
	Salutation		83
Interpersonal Orientations	Affect		96
	Name		86
		Author	91
	Friend		85
	Mutual Orientations		93